

DISCUSSION OF THE AMENDMENT

Due to the length of the specification herein, Applicants will cite to the paragraph number of the published patent application (PG Pub) of the present application, i.e., US 2006/0100344, when discussing the application description, both in this section and in the Remarks section, *infra*, rather than to page and line of the specification as filed.

Claim 1 has been amended by raising the lower limit for BET surface area, as supported in the specification at paragraph [0015], and by lowering the upper limit for Sears number V_2 , as supported in the specification at paragraph [0017]. A typographical error was corrected in Claim 14.

New Claims 21-28 have been added. Claims 21 and 22 are supported at paragraph [0014]. Claims 23 and 24 are supported at paragraph [0015]. Claims 25-28 are supported at paragraph [0017].

No new matter is believed to have been added by the above amendment. Claims 1-28 are now pending in the application. Claims 1-4 and 21-28 are active; Claims 5-20 stand withdrawn from consideration.

REMARKS

As a preface to the discussion of the prior art rejections and obviousness-type double patenting rejections, Applicants note that the present invention is a selection invention based on Applicants' discovery that silicas used in (normal) automobile tires are unsuitable for use in truck tires, motor bike tires, and high-speed automobile tires owing to the different profile of requirements, as described in the specification at paragraph [0009]. The applied prior art does not recognize this different profile of requirements, as now discussed.

The rejection of Claims 1-4 under 35 U.S.C. § 102(b) as clearly anticipated by U.S. 6,180,876 (Uhrlandt et al), is respectfully traversed.

Uhrlandt et al discloses a precipitated silica having a BET surface area of 120 to 300 m²/g, a CTAB surface area of 100 to 300 m²/g, a Sears number of 6 to 25 ml, a DBP number of 150 to 300 g/100 g and a WK coefficient of < 3.4 (column 1, lines 40-50). Thus, in general, these parameters are significantly broader and inclusive of and/or overlap with the corresponding parameters of the present claims. In addition, none of the Examples of Uhrlandt et al anticipate the present claims.

At best, Examples 4 and 5 of Uhrlandt et al are the closest to the presently-claimed invention, since they are the only ones using a precipitated silica having a BET surface area in the vicinity of above-amended Claim 1. Thus the silica of:

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| Example 4 | has both a BET surface area of 185 m ² /g and a CTAB surface area of 163 m ² /g, and both values lie outside of amended Claim 1; |
| Example 5 | has both a DBP number of 312 g/100 g (calculated from the stated value of 299 <u>mL</u> /100 g * 1.045 (density of the DBP)), and a Sears number of 21.6, and both values lie outside of amended Claim 1. |

Thus, **at best**, Uhrlandt et al presents a case of *prima facie* obviousness only. See, for example, *In re Peterson*, 315 F.2d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir.2003) (copy enclosed).

Moreover, while Uhrlandt et al discloses their precipitated silicas for use in tires generally, Uhrlandt et al does not distinguish between tires intended for different driving profiles and thus, could not have predicted the parameters necessary for truck tires, motor bike tires, and high-speed automobile tires, as opposed to normal automobile tires, for example.

As discussed above, the present invention is a selection invention from the relatively broader disclosures in the prior art, such as Uhrlandt et al, as now demonstrated. In other words, the present inventors have succeeded in finding and demarcating, from an unimaginable number of theoretically disclosed silicas in Uhrlandt et al, those which are suitable for incorporation in motor bikes, trucks and high-speed automobile tires. The fact that the selected silicas have a considerable technical advantage will be shown below.

As described in the specification at [0005]-[0008], silicas for commercial-vehicle tires have a requirements profile that is clearly different from that of silicas for passenger-car tires. This area of application imposes the following special requirements, among others, on the silica: enabling the manufacture of commercial-vehicle tires that, compared with passenger-car tires, have much higher mileage, less wear, off-road ability, good tensile strength and improved traction. On the other hand, silicas for normal passenger-car tires must guarantee low rolling resistance. In addition, the requirements for mileage are much less stringent.

Uhrlandt et al, on the other hand, is concerned with improved dispersability in rubber mixtures (column 1, lines 34- 36). Examples 10 and 11 of Uhrlandt et al provide detailed knowledge on which silicas can be used for incorporation in the running surface of a passenger-car tire and which can be used for incorporation in the carcass of a normal

passenger-car tire.

Between the publication of Uhrlandt et al and the filing date of the present invention, it was found that silicas that are suitable for incorporation in normal passenger-car tires are not suitable for incorporation in commercial-vehicle tires, as discussed above. One could not conclude as such from Uhrlandt et al.

As discussed above, Uhrlandt et al discloses very broad ranges for BET, CTAB, DBP number and Sears number. From this, it is statistically possible to calculate a very large number of theoretically disclosed parameter combinations. By comparison, if combination possibilities according to above-amended Claim 1 are considered, it is evident that the claimed "combination of parameters," in effect, claims only a very small and narrow part of the disclosure of Uhrlandt et al. It is therefore necessary to assess the combination of parameters, as opposed to each parameter separately.

To that end, the newly-submitted Wehmeier Declaration provides a new Example A (which should be considered with Examples 1 to 3 described in the specification herein.). In Example A, the inventive silica according to present Example 1 is compared to the silicas according to above-discussed Examples 4 and 5 of Uhrlandt et al in a typical passenger-car tire composition.

Example A shows that the silicas of the present claims bring about an increase of the high-temperature tearing resistance, tested according to ASTM D 624, compared to Examples 4 and 5 of Uhrlandt et al. The performance increase compared to Example 4 of Uhrlandt et al was 44%, and compared to Example 5 thereof was 36%. These numbers make it clear that the significant improvement is more a matter of kind than of degree. It is further clear that this effect was achieved in a parameter that is important in particular for the subject matter of the invention, or in other words motor-truck tires, motorcycle tires and high-speed tires.

Example A confirms that the present claims are drawn to a parameter combination

that is the result of careful deliberations and systematic **selection** of parameters. The effect of a 36% or 44% performance increase shows that the inventors have successfully discovered, from the large number of silicas of Uhrlandt et al, those which are suitable for motor-truck tires, motorcycle tires and high-speed tires, and have demarcated them from silicas that are not suitable for this purpose.

As explained above, the focus of Uhrlandt et al is completely different from that of the present invention. Uhrlandt et al is directed to passenger-car silicas, whereas the present invention is directed to silicas for commercial-vehicle tires. It is therefore evident that the silicas according to Examples 4 and 5 of Uhrlandt et al must have – and as shown by Example A they also do have – properties and capabilities different from those of the present invention.

For all the above reasons, it is respectfully requested that the rejection over Uhrlandt et al be withdrawn.

The rejection of Claims 1, 2, and 4 under 35 U.S.C. § 102(b) as clearly anticipated by U.S. 5,705,137 or U.S. 5,859,117. These patents are related to each other as parent and divisional application, respectively, and thus have the same disclosure. The discussion below will cite to column and line of U.S. 5,705,137 (Goerl et al).

Goerl et al discloses that it was known in the prior art that precipitated silicas are known that have, *inter alia*, a BET surface area of 35 to 350 m²/g, a silanol group density (V₂-NaOH consumption) [Sears number] of 6 to 20 ml, a CTAB surface area of 30 to 350 m²/g, and a DBP index of 150 to 300 ml/100g (column 2, lines 12-22). Goerl et al's invention requires, *inter alia*, a CTAB surface area of greater than 200 m²/g, and more particularly, precipitated silicas having a CTAB surface area of 200 to 400 m²/g, a DBP index of from 230 to 380 ml/100g, a Sears number of 20 to 30 ml (column 2, lines 33-38). However, like Uhrlandt et al above, Goerl et al does not disclose any particular silicas

meeting all the terms of the present claims. Indeed, all of the examples of Goerl et al have a Sears number of greater than 20, and are thus all outside the terms of the present claims. Thus, Goerl et al is no more relevant than Uhrlandt et al, discussed above. Accordingly, it is respectfully requested that this rejection be withdrawn.

The rejection of Claims 1 and 2 under 35 U.S.C. § 102(e) as clearly anticipated by U.S. 2003/0003040 (Lindner et al), is respectfully traversed. Lindner et al discloses precipitated silicas having, *inter alia*, a BET surface area of from 50 to 700 m²/g, a DBP absorption of from 100 to 450g/100g, and a Sears number greater than 20, preferably greater than 25, and particular preference greater than 28 [0028]-[0033]. The present claims, on the other hand, require a maximum Sears number of 20. Accordingly, it is respectfully requested that this rejection be withdrawn.

The provisional rejection of Claims 1-4 on the ground of non-statutory obviousness-type double patenting over Claims 1-4 of co-pending Application No. 10/522,672 ('672 application), is respectfully traversed. The claims of the '672 application require, *inter alia*, a Sears number of at least 23. Accordingly, it is respectfully requested that this rejection be withdrawn.

The provisional rejection of Claims 1 and 4 on the ground of non-statutory obviousness-type double patenting over Claims 1, 3, 5, and 18 of co-pending Application No. 10/542,850 ('850 application), is respectfully traversed in view of the Terminal Disclaimer **submitted herewith**. Accordingly, it is respectfully requested that this rejection be withdrawn.

The provisional rejection of Claim 1 on the ground of non-statutory obviousness-type double patenting over Claims 16 and 19 of co-pending Application No. 11/517,395 ('395 application), is respectfully traversed. Claims 16 and 19 of the '395 application require a

Sears number of at least 25. Accordingly, it is respectfully requested that this rejection be withdrawn.

The provisional rejection of Claim 1 on the ground of non-statutory obviousness-type double patenting over Claims 1, 2, and 4 of co-pending Application No. 11/517,396 ('396 application), is respectfully traversed. Claims 1, 2 and 4 of the '396 application require a Sears number of at least 28. Accordingly, it is respectfully requested that this rejection be withdrawn.

The rejection of Claims 1-4 on the ground of non-statutory obviousness-type double patenting over Claims 1 and 13 of Uhrlandt et al, is respectfully traversed. These claims of Uhrlandt et al are no more relevant than the disclosure in Uhrlandt et al, discussed above. Accordingly, it is respectfully requested that this rejection be withdrawn.

All of the presently-active claims in this application are now believed to be in immediate condition for allowance. The Examiner is respectfully requested to rejoin non-elected process claims 5-13. In addition, the remaining non-elected claims all depend on Claim 1. Accordingly, the Examiner is respectfully requested to pass this application to issue with all pending claims.

Respectfully submitted,

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